ABSTRACT

EFFECT OF CONCENTRATION $CaCl_2$ AS CROSSLINKER TO THE PHYSICAL CHARACTERISTICS WITH *Bovine Serum Albumin* (BSA) IN ALGINAT MICROSPHERE

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The aim of this research was to investigate effect of concentration crosslinker on the characteristics Bovine Serum Albumin – loaded alginate microspheres. Microspheres preprared using ionotropic gelation with aerosolization technique. In the formulas were used concentration $CaCl_2$ as crosslinker (0.5M, 1.0M, 1.5M) and sodium alginate as polymer (2.5 %).

BSA-Alginate microspheres were successfully prepared by ionotropic gelation using aerosolization technique. Microspheres were resuspended in 5% maltodextrin solution as lyoprotectant and were freeze-dried for 24 hours. The microspheres were evaluated for their physico - chemical characteristics such as FT-IR, particle size, morphology, drug loading (DL), entrapment efficiency (EE), and yield value.

Interaction between polymer and $CaCl_2$ in microspheres was characterized by FT-IR and thermal analysis using DTA. As results, on the FT-IR spectra interactions between drug, polymer, and crosslinked confirmed by the shift of carbonyl group and the loss of guluronic wave number in the fingerprint area. In DTA termogram shown decrease melting point of the formula at the temperature 166 – 163^oC. All mircospheres were spherical, smooth and have partikel size below 5μm. Particle size decreased by increasing concentration. Spherical microspheres were shown with average sizes from 3.46 – 2.39 μm, and moisture content was < 5% . Drug loading increased by increasing $CaCl_2$ concentration. Entrapment efficiency increased by increasing $CaCl_2$ concentration. Yield increased by increasing $CaCl_2$ concentration, yield value was between 64.37% – 77.44 %.

Keyword : aerosolization, BSA, microspheres, sodium alginate, characterization